

From the absence of a publisher's name on the title-page, it is to be inferred that it has been Lord Lindsay's intention to circulate his volume privately amongst astronomers; and we know that this has been done to a most liberal extent: still there must be many persons, unknown to the author, who would gladly provide themselves with so unexpected and useful an addition to astronomical literature, and we would suggest whether it might not be desirable to place this volume, which appears to be intended as the precursor of a series, on sale to the astronomical public.

NOTES

THE Italian Scientific Association, or Society of the Forty, has conferred on Sir William Thomson the prize instituted by Carlo Matteucci, for the Italian or foreigner, who, by his writings or discoveries, has contributed most to the advancement of science.

AT the annual meeting of the Geological Society, the Wollaston Gold Medal was presented to Mr. Robert Mallet, F.R.S., and the proceeds of the Wollaston Donation Fund, to Mr. R. Etheridge, jun., F.G.S.; the Murchison Medal to Rev. W. B. Clarke, F.R.S., Sydney, and the proceeds of the Murchison Geological Fund to the Rev. J. F. Blake, F.G.S.; the Lyell Medal and part of the Lyell Fund, to Dr. James Hector, F.R.S., New Zealand, and the balance of the Lyell Fund to Mr. W. Pengelly, F.R.S.; the Bigsby Medal to Prof. O. C. Marsh, F.G.S., Yale College, U.S.

THE total expenditure on the new building at South Kensington for the reception of the Natural History Collections now in the British Museum is stated in the new Civil Service Estimates to have been 206,472*l.* up to September 30 last. A further sum of 36,650*l.* is required to carry on the works up to the end of the present financial year. This amount has been already voted. The proposed vote for the present financial year 1877-78 is 70,000*l.*, leaving the amount of 81,878*l.* necessary to complete the building, the total estimate having been 395,000*l.* We may remark that it is not only in this country that a new Museum of Natural History is in progress. Both at Paris and at Berlin the present buildings for the National Museum are found to be too small, and large sums are to be appropriated to their reconstruction.

THE new Civil Service Estimates also contain an account of the proposed expenditure on the working out of the collections brought home by H.M.S. *Challenger*, which amounts altogether to 4,000*l.* Of this 1,560*l.* is to be devoted to "salaries," 800*l.* to "piece-work," 1,200*l.* to "plates," 240*l.* to "travelling expenses," and 200*l.* to "stores." The salary of the director is to be 500*l.* per annum, that of his chief assistant 400*l.*

IN the Civil Service Estimates for the present year under the head of "British Museum," it will be found that 800*l.* are asked for for acquisitions in the Department of Mineralogy, 800*l.* for Fossils, 1,200*l.* for Zoological, and 400*l.* for Botanical specimens. At the same time it may be noted that the sum of 10,000*l.* is to be devoted to the purchase of printed books, although copies of all books published in the United Kingdom are furnished gratis to the Museum.

PROF. ALFRED NEWTON, F.R.S., has been elected to a Fellowship at Magdalene College, Cambridge.

THE death is announced, at the age of seventy-six years, of Admiral Wilkes, of the U.S. Navy. Probably our readers will better recognise him under the name of Commodore Wilkes, the commander of the well-known U.S. exploring expedition of 1838-42, the results of which were of great scientific importance. Wilkes was the author of a work on the Theory of Winds. He was the same Wilkes who, by his conduct in the Mason and

Slidell incident of the American civil war, nearly caused war between this country and the United States.

POGGENDORFF's *Annalen* will be continued under the editorship of Prof. G. Wiedemann, in Leipsic, who is already the editor of the supplement (*Beiblätter*), and Prof. Helmholtz will join him in his new task. The old staff of contributors have declared their willingness to continue the publication of their researches in the *Annalen*.

AT the Royal Geographical Society on Monday, papers were read "On his recent journey to Lake Nyassa," by Mr. E. D. Young, R.N., and an "Examination of a route for wheeled vehicles between the east coast of Africa and Ugogo," by the Rev. Roger Price.

MR. L. HEILIGBRODT, of Bastrop, Texas, has been engaged since 1867 in making collections of the reptiles and insects of that district.

PROF. KUNDT has been chosen Rector of Strassburg University for this year.

PROF. SCHWENDENER, of Basel, has been called to the chair of the late Prof. Hofmeister, of Tübingen.

WE learn from Helsingfors that M. Henez has returned from his travels in Russian Lapland. He has been studying the little-known language of the Lapps on the Murmansk peninsula. Besides a collection of interesting ethnological data, he has brought with him a complete translation of the Gospel of St. Matthew, which, we believe, will be published by the English Bible Society in Russian type.

WE notice an interesting Russian monograph by M. Malieff—"Anthropological Sketch of the Bashkirs,"—which has appeared in Kazan. The author, who was sent to the Orenburg Government by the Kazan University, to collect skulls of Bashkirs, and spent some time among this people, gives a number of anthropological measurements of men, statistics as to births, and various interesting information on the present state of the Bashkirs, their rapid increase, their customs, religion, &c., and discusses their future prospects.

THE *Golos* announces that the Moscow Society for Promoting the Development of Russian Marine Trade will continue next year the exploration to the Gulf of the Obi, and also build some vessels for exporting, in 1878, various merchandises from the Obi into Europe, especially of ship-building wood to England. M. Dahl, a teacher at the Gainag Marine School in Livonia, with some of his pupils, will be intrusted with this task.

SOME difficulties have been met with in the advance of Potanin's expedition in Western Mongolia. When passing by the convent of Shara Sumson the members of the expedition were assailed by the monks, and student Posdnéeff and the interpreter received severe injuries. Nevertheless, Potanin continues to advance into the interior of the country.

THE occurrence of gold disseminated in small quantities through the older geological formations of Australia has been known for many years. But Mr. C. S. Wilkinson, of the Geological Survey of New South Wales, has observed what seems to be a new fact, that gold in sufficient quantity to be worth mining, occurs in a conglomerate belonging to the Coal-measures, and that the alluvial gold of the Old Tallawang diggings has been derived from the waste of these conglomerates. He justly points out that, apart from the scientific interest belonging to so venerable an auriferous alluvium, considerable commercial importance attaches to its discovery, seeing that the conglomerates may now become a new source of supply for the precious metal. At Clough's Gully the actual conglomerate is now being worked, and yields from 1 dw. to 15 dwts. of gold per ton, and nuggets sometimes weighing 5 ounces.

PROF. W. H. FLOWER, F.R.S., will commence his course of Hunterian Lectures at the Royal College of Surgeons in Lincoln's Inn Fields, on Friday, March 9. The lectures, nine in number, will be delivered on Mondays, Wednesdays, and Fridays, at four o'clock, the subject being "The Comparative Anatomy of Man." From the prospectus, we learn that after treating of the variations in the human external, dental, and osteological characters, Prof. Flower will discuss the methods of estimating the capacity of the skull, craniometry, and the peculiarities of the brain. It is worthy of remark that anyone anxious to attend these lectures, if not connected with the College, will be allowed to do so upon application for a card of admission.

THE Association of German naturalists meets at Munich on September 18, and not in February, as stated in a recent number.

WE are glad to be able to state that a final settlement has been arranged between Mr. Floyd and the trustees of the late Mr. Lick's legacy on the one hand, and Mr. Lick, the son of the testator and the other relatives on the other. After a deduction of about 200,000 dollars the whole of the estates will be reserved for the ends proposed by Mr. Lick, the father. The sum so secured for scientific purposes amounts to a little less than three million of dollars.

THE French Society of Aërial Navigation has published a circular stating that owing to internal difficulties the meetings are suspended up to May 1. Another society was established by French aëronauts—who escaped from Paris by balloon during the siege—last April and is called the School of French Aëronauts. They confine themselves to practical ends, devoting themselves exclusively to the use of balloons for scientific purposes.

A NEW aëronautical periodical, *l'Aerostat*, has been published in Paris by M. Achille Rouland, secretary of the School of French Aëronauts. It is to appear three times a month, and to contain a summary of all aëronautic news.

The *Denstonian* is the name of a journal published as the organ of St. Chad's College, Denstone, Uttoxeter. It devotes some space to natural history.

"GEOLOGICAL Time" was the subject of the presidential address of Mr. T. Mellard Reade to the Liverpool Geological Society, and which has been published in a separate form.

NEWMAN'S *Entomologist* now appears as *The Entomologist*, and several new features have been added which will increase its scientific value.

A SPECIAL committee, intrusted with the elaboration of a scheme for the representation of Russian gardening at the Paris Exhibition of 1878, has been appointed by the Russian Society of Gardening.

By order of the Lord President of the Council, a letter, written by Mr. Andrew Murray, on Injurious Insects has been sent to the Secretaries of the Agricultural Societies of England, Scotland, and Ireland. Mr. Murray proposes a method of stamping out these insects which is worthy of being tried.

DR. PETERMANN has just published an index to his *Mittheilungen* for the period between 1865–1874. This will be of great value to geographers, and its value is much enhanced by two most ingeniously-constructed index-maps which show the various parts of the earth that have been mapped in the *Mittheilungen* during that period, and in a simple way indicate where the map will be found. Besides a general index-map there are maps of the various Continents and of the Arctic and Antarctic regions. By differently coloured lines the scale of the special map referred to is shown, as also its character, whether outline, topographical, physical, or geological.

A MEMORIAL to Lomonosoff, erected in the square of the University of Moscow, was unveiled on the anniversary-day of the University, January 24. The memorial, which was erected at the very moderate cost of 225*l.*, collected among professors and students of the Moscow University (founded by Lomonosoff in 1755), is very modest. It consists of a small bust placed on a high very plain pyramidal pedestal bearing the inscription: "To Lomonosoff—the Moscow University: year 1877." In an address by M. Solovieff, Professor of History, he briefly sketched the impulse given to science in Russia by Lomonosoff, and insisted especially on the importance of his works in the development of the history of his nation. No reference was made to the task performed by Russia's first physicist. We are glad to take this opportunity to say that it is a great pity that the Russian learned societies have not yet published a collection of the works of Lomonosoff, all the more as many of his writings, dispersed in rare old periodicals, are now totally unknown or forgotten. This neglect induces us to think that Russian men of science have not yet fully appreciated the depth and width of the physical conceptions of this remarkable physicist of the past century, who not only devoted his time to the study of the most important questions of astronomy, physics, and physical geography (as, for instance, the transit of Venus, the existence of ascending warm currents in the atmosphere), but also in a now forgotten, but able paper on the Arctic Seas, expressed himself very explicitly as to heat being but a mode of motion. We think, therefore, that a complete edition of Lomonosoff's works would be not only an addition to the glory of the science of the eighteenth century, but also a most interesting acquisition for all those who are interested in the history of science.

A PARTY of the Swiss Alpine Club have availed themselves of the prevailing mild weather to extend their yearly winter excursion in the mountains as far as the Col de Balme. They crossed the mountain-pass on January 21, and, after many pleasant adventures, reached the hotels of the Col, which were so deeply buried in snow that the way to the rooms had to be made through the windows of the first floor. Other parties, of French and Swiss excursionists, visited about the same time the renowned archæological ground lying in the Jura between Montbelliard and Porrentruy. The special aim of the excursions was to organise a scheme for a thorough exploration and a detailed survey of these localities to be undertaken next summer. If we take into account the immense number of caves, rocky *abris* (shelters), tumuli, grave-walls, open dwelling-places, and megalithic stones scattered over this part of the Jura, and the strange anomalies observed in the geographical distribution of these remains of prehistoric man (only caverns and rocky *abris* being known in the Swiss part of the Jura, whilst the French part abounds with all kinds of remains enumerated above), we cannot but hope that an exploration of these localities will result in valuable contributions to prehistoric archæology.

A NEW form of marine sounder has been described to the French Academy by M. Tardieu. It consists of a spherical envelope of caoutchouc, a few centimetres in thickness, communicating with an iron reservoir by means of a tube of small diameter fitted with a valve. The caoutchouc envelope being filled with mercury, any increase of the exterior pressure makes a certain quantity of mercury pass into the iron reservoir, whence, however, it cannot return. When the apparatus has been lowered in deep water, the weight of the mercury found in the reservoir enables one to determine the pressure to which it has been subjected, and therefore the depth.

M. FELIX PLATEAU read, at a recent meeting of the Belgian Academy, a paper giving an account of the journeys of a large number of Belgian naturalists during the last two centuries. This paper is now published separately (Hayez, Brussels), and contains much important information.

THE Russian Government having refused to enact a law by which all the *koorgans*, or ancient and prehistoric grave-mounds, so numerous in Russia, would be proclaimed the property of the state, a private society is now in way of formation for the same purpose. The society proposes to enter into negotiations with proprietors of land for receiving from them grants of property on the *koorgans*, and to undertake afterwards a series of systematical explorations of these mounds.

THE *Denver News* states that after a severe snowstorm on the night of December 22, 1876, the sun, next morning, rose clear, but the air was filled with particles of frost, the refraction from which caused the appearance of "mock suns" or "sun dogs." First, extending from the sun right and left was a circle entirely around the heavens. Along it were the "sun dogs" in their usual places, with extra ones in the north-west, south-east, and south-west, being directly opposite the sun and at right angles to that line. A very bright circle, like a continuous rainbow, surrounded the sun, at an angle twenty or thirty degrees from it, and crossing the horizontal circle at the most brilliant of the false suns. Another and similar circle, and of about the same diameter, occupied the zenith. Thus there was a complete circle around the horizon, and twenty to thirty-five degrees above it two complete rainbow circles of exceeding brightness and seven "mock suns" or "sun dogs." The spectacle lasted, with changing effects, for two hours or more.

AUSTRIAN census statistics show that cretinism is prevalent to a great extent in the more mountainous portions of the empire. The proportion in 10,000 inhabitants is 40 in the Salzburg district, 18.3 in Upper Austria, 17 in Styria, 10 in Silesia, 7.6 in Tyrol, &c. As yet no institution has been provided by the state for the reception of the unfortunate victims.

A SERIES of measurements of the calorific intensity of solar radiations and of their absorption by the terrestrial atmosphere, has been lately made by M. Crova. His mode of observation is described in the December number of the *Journal de Physique*. He has ascertained that the law of transmission of radiations may be represented by an expression of the form $y = \frac{Q}{(1+ax)} b$, in which y represents the calorific intensity of radiations which have traversed an atmospheric thickness equal to x ; Q is the solar constant which, in the author's experiments, is represented by values generally superior to two units of heat received per minute on a square centimetre; a and b are two numerical constants determined by the position of tangents to the curve drawn at different points. The coefficient of transmissibility of the radiations through an atmospheric thickness equal to unity varied, in the circumstances in which M. Crova measured it, between about 0.940 and 0.800, according as the atmospheric thickness already traversed was more or less considerable.

MINERALOGISTS have often been troubled to distinguish with certainty between apatite and nephelin. A. Streng communicates in the last *Mineralogischen Mittheilungen*, a simple but secure method for overcoming this difficulty. If a drop of a concentrated solution of ammonium molybdate in nitric acid be placed on a thin section of an apatite crystal under a microscope, the observer notices quickly the formation of a circle of small yellow crystals of $10\text{MoO}_3 + \text{PO}_4(\text{NH}_4)_3$, either in the form of regular octahedrons or of regular rhombic dodecahedrons. A second test is the following. If a drop of sulphuric acid be added to a section which is already partially dissolved in nitric acid, the formation of crystals of gypsum is easily noticed. Nephelin yields negative results in both cases; a positive test for its presence consists in the addition of a drop of hydrochloric acid to a thin section under the microscope. After the lapse of a few minutes the formation of numerous small colourless cubes of sodium chloride is quite perceptible. They result from the

decomposition of the silicate of sodium by hydrochloric acid, and the insolubility in the latter of the salt thereby formed.

THE *Bulletin* of the Belgian Academy of Science (vol. 42, Nos. 9 and 10) contains the second part of an interesting memoir by M. J. Plateau, "On Accidental or Subjective Colours." The author had advanced, in 1834, a theory for the explanation of the subjective colours, and especially insisted on the circumstance that, after having looked some time upon a coloured body, we mostly do not see the true complementary colour, but some other: the orange, for instance, instead of a pure yellow, after the blue; or a violet, instead of the blue, after the yellow. He explained it by supposing, firstly, that the retina, after having received the impression of some colour, comes immediately into such a condition as if it were influenced by the opposite colour, but that this subjective impression soon disappears, and reappears again, alternating with reappearing impressions of the primitive colour of the coloured body; and secondly, that similar phenomena take place also in space, *i.e.*, that the image of the coloured body on the retina is surrounded, firstly, by a narrow strip of the same colour as the body (which phenomenon we call irradiation), and then by a strip of opposite colour, around which, under some circumstances, may reappear a third strip, of the colour of the body looked upon. This theory having been much opposed since its appearance, especially in Germany and England, the author now discusses the various objections advanced against it; those relative to the first part of the theory were the subject of the first part of the memoir (*Bulletin*, vol. 39, 1875), and those relative to its second part are dealt with in this second memoir. The author begins his discussion with the objections against his theory of irradiation, dealing at great length with the opinions and objections of Helmholtz, and treating very skillfully the many difficulties of the whole question, among which the various myopia of the observers seems to be an important one. Further, the author criticises the theories of irradiation advanced until now (the imperfect accommodation of the eye, its spherical and chromatic aberration, and the diffraction at the borders of the pupil), and concludes that the fact that two neighbouring irradiations may mutually neutralise each other, would alone be sufficient to condemn all these theories. The memoir is to be continued.

A COMPARISON has recently been made by Dr. Buff between the indications of the thermomultiplier and the radiometer. The two instruments were placed side by side in the cone of light admitted through an aperture of a board from a gas lamp, which could easily be regulated and kept constant for some minutes. There was a glass disc in front of the thermopile. In the galvanometer the deflections of the needle were proportional to the deflecting force up to 21° . On tabulating deflections and numbers of rotations, it appears that their product is very nearly a constant number, warranting the inference that *the velocity of rotation of the little wheel is inversely proportional to the heat action of the penetrating rays*. This confirms the view that the turning of the radiometer is due to an action of heat rays which penetrate the glass. "If the radiometer," says Dr. Buff, "is incapable of measuring a mechanical force of light, it none the less wears its present name with full right. It is a special form of thermometer, only exclusively for heat rays of high refrangibility, whose heating force is proportional to the velocity of rotation of the wheel."

THE additions to the Zoological Society's Gardens during the past week include a Mauge's Dasyure (*Dasyurus maugei*) from Australia, presented by Mr. Robert S. Craig; a Slender-billed Cockatoo (*Licmetis tenuirostris*) from Australia, presented by Mr. Bartle G. Goldsmid; a Chilian Sea Eagle (*Geranoaetus aguius*) from South America, presented by Mr. C. Clifton; a Levaillant's Amazon (*Chrysotis levaillanti*) from Mexico, pre-

sented by Mrs. Mathews; a Common Kestrel (*Tinnunculus alaudarius*), European, presented by Mr. W. W. Hughes; a Rough-legged Buzzard (*Archibuteo lagopus*), European, presented by Lady Bunbury; a Passerine Owl (*Glaucidium passerinum*), European, presented by Mr. T. W. Evans; a Burriel Wild Sheep (*Ovis burriel*) from India; a Suricate (*Suricata senek*) from South Africa; two Beautiful Parrakeets (*Psephotus pulcherrimus*) from Australia, deposited; a Common Rattlesnake (*Crotalus durissus*) from North America, purchased.

SCIENTIFIC SERIALS

American Journal of Science and Arts, February.—Astronomical observations on the atmosphere of the Rocky Mountains made at elevations of from 4,500 to 11,000 feet, in Utah and Wyoming Territories and Colorado, by Prof. Draper.—On dinitroparadibrombenzols, and their derivatives, by Dr. Austen (second paper).—On the orbit of the planet Urda (167), by C. H. F. Peters.—Principles of compensation in chronometers, by J. K. James, M.D.—Notes on the Vespertine strata of Virginia and West Virginia (concluded), by W. M. Fontaine.—On the chemical composition of the flesh of *Hippoglossus americanus*, by R. H. Chittenden.—Notice of Darwin on the effects of cross- and self-fertilisation in the vegetable kingdom, by Asa Gray.—Note on *Microdiscus speciosus*, by S. W. Ford.—On water-courses upon Long Island, by Elias Lewis, jun.

Poggendorff's Annalen der Physik und Chemie, No. 12, 1876.—The ball supported on a jet of water, by M. Hagenbach.—On fluorescence, by M. Lommel.—Electromagnetic properties of unclosed electric currents (concluded), by M. Schiller.—The thermomultiplier as a meteorological instrument, by M. Buff.—On the temperature of the electrodes in induction sparks, by M. Herwig.—On an analogy of chromoxide to the oxides of the cerite metals, by M. Wernicke.—On the theory of condensers, by M. Aron.—On the ratio of cross-contraction to longitudinal dilatation in caoutchouc, by M. Röntgen.—On electrical figures in solid insulators, by M. Holtz.—On the work to be done in evacuation of a given space, by M. Koláček.—Contributions to history of natural sciences among the Arabians, by M. Wiedemann.—A historical note on Daniel Bernoulli's gas theory, by M. Berthold. [With this number is issued No. 1 of the *Beiblätter*. It contains twenty-five abstracts of various physical researches that have recently been published.]

THE *Naturforscher* (December, 1876) contains the following papers of interest:—On the action of capillary tubes upon mercury, by E. Villari.—On the influence of water upon the temperature of the soil, by E. Wolny.—On boron, by W. Hampe.—On the determination of the vapour-density of substances having a high boiling-point, by V. Meyer.—On the polarisation of carbon electrodes, by H. Dufour.—On the relation of the organ of sight to the absence or presence of light, by Herr Joseph.—On the age of cells and the protoplasma currents, by Herr v. Vesque Püttlingen.—On symbiotism (the cohabiting of different species of plants), by A. B. Frank.—On the periodic change in the colour of a *Ursæ* Majoris, by H. J. Klein.—On the dependence of the respiration of plants upon temperature, by Adolf Meyer.—On the frequency of shooting-stars, by J. F. Schmidt.—On the influence of surrounding temperatures upon the circulation of matter in warm-blooded animals, by G. Colasanti.

FROM the *Verhandlungen des naturhistorischen Vereins der preussischen Rheinlande und Westfalens* (32 Jahrg., Part 2) we note the following papers:—Section for geography, geology, mineralogy, and palæontology: on the meteorites of the Natural History Museum of the University of Bonn, by Prof. vom Rath.—On the theoretical conclusions drawn from some observations made in a shaft of 4,000 feet depth at Sperenberg, by Prof. von Lasaulx.—On some fossils from the Neanderthal, by Prof. Schaaffhausen.—On the late volcanic eruption in Iceland and the ashes fallen in Sweden, by Prof. vom Rath.—On the cause of the ice-period, by Dr. Mohr.—On the occurrence of olivine in basalt, by Dr. Mohr.—On the most recent eruptions on the Island of Vulcano and their products, by Prof. vom Rath.—On the systems of volcanic crevasses in Iceland, by Dr. Gurlt.—On an investigation of Westphalian caves, by Prof. Schaaffhausen.—On the occurrence of rock salt in the Keuper formation near Hünigsen, by Dr. Gurlt.—On remains of *Vertebrata* from gravel deposits near Porta (Westphalia), by Herr Banning.—On fulgurites, by Herr v. d. Marck.—On fossil fishes from Sumatra and

from Rinckhore, near Senderhorst, by the same.—On the thermal sources of Oynhausen, by Herr Graeff.—On the origin of and changes in Downs, with special reference to those of the German coasts of the North Sea, by Herr Borggreve.—On the geology of Eastern Transylvania, by Prof. vom Rath. Botanical Section: On dichogamy and the conditions regulating the production of blossoms in plants which bear fruit periodically, by Herr Borggreve.—On the formation of the primordial tube, by Herr Pfeffer.—On the production of high hydrostatic pressure through endosmotic action, by the same.—On the fruit of *Hura crepitans*, by Herr Andrac. Section for Anthropology, Geology, and Anatomy: On the palates of *Ptenoglossa*, by Prof. Troschel.—On a luminous beetle of the *Physodora* family from Java, by Herr Moknike.—On the fertilisation of the ova of *Araneida*, by Herr Bertkau.—On a stone sarcophagus found near Sechtem (on the Cologne-Bonn railway), containing well-preserved red hair of reddish tint, by Prof. Schaaffhausen.—On the various views of different naturalists on the reproduction of eels, by Prof. Troschel.—On the so-called *Cribellum* of L. Koch, by Herr Bertkau.—On some rare and remarkable *Arachnida* of the Rhenish fauna, by the same.—On stone implements and other objects found in the Klusenstein and Martin's Caves, by Prof. Schaaffhausen. Section for Chemistry, Technology, Physics, and Astronomy: On the separation of ethyl-bases by means of oxalic ether, by Prof. Wallach.—On converting amides into bromides, by V. von Richter.—On indium, by the same.—On some experiments with hydrobenzoin, by Herr Zincke.—On an apparatus for measuring very small fractions of time, by Herr Gieseler.—On a new electro-dynamical law, by Prof. Clausius. Physiological Section: On the functions of the spinal cord, by Dr. Frensborg.—On the structure of the tissues of blood-vessels and the inflammation of veins, by Herr Köster.—On santonine poisoning, by Herr Binz.—On the influence of salicylic acid upon the bones, by Herr Koster. The remaining papers are of purely medical interest.

Reale Istituto Lombardo di Scienze e Lettere. Rendiconti, December 28, 1876.—On some differential equations with algebraic integral, by M. Brioschi.—On the electric theory of the radiometer, by M. Ferrini.—On the anti-fermentative action of boric acid, and its application in therapeutics, by M. Polli.—On the *sclerotium oryzae*, a new vegetable parasite which has devastated many rice-fields of Lombardy and the Novarese during the past year, by M. Cattaneo.—Mildella, a new genus, type of new tribes of Polypodiaceae.—Graeco-Indian studies, by M. Cantor. Relating to geometry, algebra, astronomy; &c.

Morphologisches Jahrbuch, vol. ii. part 3.—On the structure of the skin and dermal sense-organs of Urodela (*Proteus*, *Melopoma*, *Cryptobranchus*, *Salamandra*, *Triton*, *Salamandrina*), by F. Leydig, four plates.—On the metamorphosis of *Echirus*, by W. Salensky, four stages figured.—On the exoskeleton of fishes, by O. Hertwig. Part 1, sixty-eight pages, six plates, relating to Siluroids and Accipenseroids. The placoid scales of Selachians, the dermal teeth of Siluroids, and the dermal scutes of Accipenseroids are shown to be homologous.—Contribution to the morphology of the limbs of vertebrates, by Prof. Gegenbaur.—The most ancient form of the carpus and tarsus of Amphibia, by R. Wiedersheim.

SOCIETIES AND ACADEMIES LONDON

Royal Society, February 8.—“On the Transport of Solid and Liquid Particles in Sewer Gases.” By E. Frankland, F.R.S.

The suspension of vast aggregate quantities of solid and liquid particles in our atmosphere is the subject of daily remark. Cloud, fog, and smoke consist of such particles, and I have repeatedly seen at a distance of a few feet abundance of snow-crystals floating in the air, when the atmosphere was apparently perfectly clear and cloudless by placing the eye in shadow and then looking into the sunshine.

Prof. Tyndall has, I conceive, proved that a very large proportion of the suspended particles in the London atmosphere consists of water and other volatile liquid or solid matter by showing that the heat of boiling water is sufficient to dissipate them. That this is the true explanation of the disappearance of such particles by the application of a moderate degree of heat, and that it is not caused by the rarefied air from the heated body ascending and leaving behind the suspended matter, as suggested by Tyndall is, I think, conclusively proved by experiments in which